

**PULSOR 300 / 350 / 400 / 500 / 400 Mt° / 600 Mt°****OPERATING INSTRUCTIONS****INTRODUCTION**

This guide has been prepared for the operator of Carrier Transicold refrigeration units. It contains basic instructions for the daily operation of the refrigeration unit as well as safety information, troubleshooting tips, and other information that will help you to deliver the load in the best possible condition.

Please take the time to read the information contained in this booklet and refer to it whenever you have a question about the operation of your Carrier Transicold unit. This manual refers to the standard model. Some options may not appear in it, and in such cases you are requested to consult our Technical Services.

Your refrigeration unit has been engineered to provide long, trouble-free performance when it is properly operated and maintained. The checks outlined in this guide will help to minimize on the road problems. In addition, a comprehensive maintenance program will help to insure that the unit continues to operate reliably. Such a maintenance program will also help to control operating costs, increase the unit's working life, and improve performance.

When having your unit serviced, be sure to specify genuine Carrier Transicold replacement parts for the highest quality and best reliability.

At Carrier Transicold, we are continually working to improve the products that we build for our customers. As a result, specifications may change without notice.

**CONTENTS**

CE CONFORMITY DECLARATION .....	4
1. DESCRIPTION & IDENTIFICATION .....	5
1.1. Description .....	5
1.2. Nameplate .....	5
1.3. Noise level sticker .....	5
2. RECOMMENDATIONS .....	5
2.1. Parking .....	5
2.2. Washing .....	5
3. SAFETY .....	5
3.1. Warning stickers maintenance .....	7
4. PRODUCT LOADING .....	7
4.1. Before loading .....	7
4.2. When loading .....	7
5. RECOMMENDED TRANSPORT TEMPERATURES .....	8
6. CAB COMMAND DESCRIPTION .....	8
7. OPERATION .....	8
7.1. Operation principle .....	8
7.2. To start the unit .....	9
7.3. To stop the unit .....	9
7.4. To change display brightness .....	9
7.5. To change set point temperature .....	9
7.6. To change defrost parameters .....	9
7.7. To display unit data (alarms, software version...) .....	9
7.8. To set user functions .....	10
8. MAINTENANCE .....	10
8.1. Maintenance schedule .....	10
8.2. Service description .....	11
9. A.T.P. EUROPE REGULATION EXTRACT .....	11
10. 24H ASSISTANCE .....	12



## CE CONFORMITY DECLARATION



## CONFORMITY DECLARATION TO THE E.E.C. DIRECTIVES

*We, Manufacturer declare that the machine designated "PULSOR" complies with the provisions of the directives:*

- 2006 / 95 / EEC,	<i>Low voltage,</i>
- 2004 / 108 / EEC,	<i>EMC,</i>
- 2006 / 42 / EEC,	<i>Machinery,</i>
- 1997 / 23 / EEC,	<i>PED,</i>
- 2000 / 14 / EEC,	<i>Noise,</i>
- 1972 / 245 / EEC, - 1970 / 156 / EEC - 2009 / 19 / EEC	<i>e &amp; E Mark</i>

- "PULSOR" classified in article 3.3 according to 1997 / 23 / EEC directive.

Carrier Transicold Industries S.C.S.  
810 route de Paris  
76520 Franqueville Saint Pierre (France)

CARRIER TRANSICOLD INDUSTRIES SCS. au capital de 7 145 000 Euros  
RCS ROUEN B 410 041 677 - SIRET 410 041 677 00023 - CODE APE 292 F - Identifiant T.V.A. FR 46410041677



## 1. DESCRIPTION & IDENTIFICATION

*Keep the fold out sheet while reading the instructions.*

### 1.1. Description

PULSOR units are an all electrical architecture, tried and tested design.

These units are manufactured as a split and monobloc system, enabling them to adapt to any little size delivery vehicle and any configuration.

- Flat evaporator
- Condenser
- Cab control
- Main road fuse (near the vehicle battery)
- Generator
- Standby plug

### 1.2. Nameplate

Each unit is identified by a nameplate attached to the frame of the unit. The nameplate identifies the complete model number of the unit, the serial number and some other information.

If a problem occurs, please refer to the information on this plate, and make a note of the model and serial number before calling for assistance. This information will be needed when you contact a technician so that he may properly assist you.

The complete nameplate (1a) is fixed on the frame and the additional serial number is fixed on unit side (1b): easily readable.

### 1.3. Noise level sticker

This sticker indicates the noise level in Lwa (sound power level).

## 2. RECOMMENDATIONS

### 2.1. Parking

Do not park your truck in a slope above 10% for a long stop.

### 2.2. Washing

- When washing the unit, DO NOT point the high pressure water on the external and internal unit.
- DO NOT spray water on electric components.

## 3. SAFETY

This manual contains safety and service instructions to follow in order to prevent any accident. Some of following stickers have been placed on the product for your SAFETY.






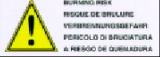







**BEFORE USING THIS REFRIGERANT UNIT**, read carefully all safety information explained in this manual and indicated on the product. Be sure that everybody who will use this refrigeration unit has been trained to use it in a safe way.

**DURING THE USE OR MAINTENANCE OF THIS REFRIGERATION UNIT**, the notes on safety are to be considered.

	<p><b>Personal protective equipment :</b></p> <p>. Always use adequate Personal Protective Equipment before doing anything on this refrigerant unit, as explained in this manual.</p> <p>. Hearing protection is recommended when unit is running.</p>
	<p><b>Working at height :</b></p> <p>Take all necessary safety precautions when accessing this refrigeration unit: use safe ladders, working platforms with appropriate guards.</p>
	<p><b>Automatic start :</b></p> <p>This refrigeration unit is equipped with Auto-Start/Stop, a valuable fuel saving feature.</p>
<p>Before servicing refrigeration unit, make sure the main power switch is on the OFF position. Ensure the unit will not restart.</p> <p>Lock-out / Tag-out can be performed by disconnecting and enclosing:</p> <ul style="list-style-type: none"> <li>- the negative battery cable in diesel mode</li> <li>- the electrical plug in electrical mode</li> </ul>	
	<p><b>Electricity :</b></p> <p>When this refrigeration unit is running in electrical operation, some devices are powered up especially in the electrical control box.</p> <p>. Always use adequate tools and Personal Protective Equipment when working on electrical devices: safety gloves and safety glasses.</p>
<p>Before servicing refrigeration unit, make sure the main power switch is on the OFF position.</p> <p>Ensure this refrigeration unit is disconnected from the local electrical network. Lock-out / Tag-out can be performed as described above. Before working in the electrical control box, it is required to control the absence of tension.</p> <p>Ensure that all condensers are discharged before service to avoid electric shock.</p> <p><b>WHEN IT IS NECESSARY TO WORK IN THE ELECTRICAL CONTROL BOX UNDER TENSION, PEOPLE MUST BE QUALIFIED FOR WORKS UNDER LOW OR HIGH VOLTAGE.</b></p>	
	<p><b>Cooling oil :</b></p> <ul style="list-style-type: none"> <li>- avoid prolonged or repeated contact with the skin.</li> <li>- wash carefully after handling.</li> </ul>



	<p><b>Belts and fans :</b></p> <p>This refrigeration unit is equipped with Auto-start/stop, it may start at any time and without warning.</p>
<p>When the unit is running beware of belts and fans that are moving. Before servicing refrigeration unit, make sure the main power switch is on the OFF position.</p> <p>Ensure the unit will not restart. Lock-out / Tag-out can be performed as described above.</p> <p>When there is protective structure (fan grid or guard for example) make sure they are in place. Never removed them when the refrigeration unit is running.</p> <p>Always keep your hands, body parts, clothes, hairs and tools far from moving parts.</p>	
	<p><b>Refrigerant :</b></p> <p>The refrigerant contained in this refrigeration unit can cause frostbite, severe burns or blindness in case of projection and direct contact with the skin or eyes.</p>
<p>In contact with flame or heat, refrigerant generates toxic gas: keep any flame, any lighted object or any source of sparks away from the refrigerant unit.</p>	
	<p>Always use Personal Protective Equipment when handling refrigerant: safety clothes, safety gloves and safety glasses.</p>
<p><b>Refrigerant Use &amp; Handling</b></p> <p>Refrigerant handling must be done by qualified people</p> <ul style="list-style-type: none"> <li>•Combustibility – HFC refrigerants can become combustible when mixed with high concentrations of air at elevated pressures including R-134a &amp; R404A.</li> <li>•Therefore, these refrigerants should not be mixed with air under pressure for leak testing or other purposes.</li> <li>•Inhalation Hazards – All refrigerants are hazardous if inhaled in concentrations exceeding the recommended safe limits. The symptoms include: headaches, nausea, sleepiness, lethargy, dizziness and loss of coordination. It can result in irregular heartbeat, unconsciousness and even death. The proper remedies should be taken to eliminate or reduce the exposures.</li> <li>•Flame Enhancement – If you see a change in the color or size of the torch flame while welding or soldering in the presence of refrigerant vapors, stop work immediately and ventilate the area. This flame effect only occurs at dangerously high concentrations of refrigerant vapors. This could create the inhalation hazards noted above.</li> </ul> <p>Skin &amp; Eye Protection – Contact with "liquid" refrigerants can result in immediate freezing of the tissues, and permanent damage or blindness can result. DO NOT handle liquid refrigerants without proper personal protective equipment. DO NOT cut into any refrigerant lines under pressure. DO NOT open valves or vent equipment where you may be sprayed with liquid refrigerant.</p>	
	<p><b>Burning with hot and cold :</b></p> <p>When this refrigeration unit is running or even after, different components can be very cold or hot: exhaust pipe, tubes, coils, receiver, accumulator, engine, heater, compressor, generator for example...</p>
<p>Beware when operating closed from cold or hot components.</p>	
	<p>Always use adequate safety gloves when doing any maintenance on this refrigeration unit.</p>
	<p><b>Cuttings :</b></p> <p>Beware when handling or operating closed from parts that could be sharp (coils, evaporators, clamps for example).</p>
	<p>Always use adequate safety gloves when doing any maintenance on this refrigeration unit.</p>
	<p><b>Battery :</b></p> <p><b>Respect polarity when connecting a battery.</b></p>
<p>This refrigeration unit may be equipped with a lead-acid type battery. When charging the battery normally vents small amounts of flammable and explosive hydrogen gas.</p> <p>Projections of acids on the skin or eyes can cause severe burns.</p> <p>Keep any flame, any lighted object or any source of sparks away from the battery elements.</p>	
	<p>Always use Personal Protective Equipment when handling and charging battery: safety clothes, safety gloves and safety glasses.</p>
	<p><b>Power generator :</b></p> <p>Be aware of HIGH VOLTAGE supplied by the generator as the unit may start automatically</p>
<p>Before servicing the unit, make sure the RUN/STOP switch is in the STOP position. Also disconnect the negative battery cable.</p>	
	<p><b>NEVER dis-assemble the generator: HIGH MAGNETIC FIELD INSIDE !</b></p>
<p>Pacemaker holders must stay clear of the unit while disassembling rotor and stator for servicing.</p>	





### CAUTION

Under no circumstances should anyone attempt to repair the Logic or Display Boards. Should a problem develop with these components, contact your nearest Carrier Transicold dealer for replacement.

Under no circumstances should a technician electrically probe the processor at any point, other than the connector terminals where the harness attaches. Microprocessor components operate at different voltage levels and at extremely low current levels. Improper use of voltmeters, jumper wires, continuity testers, etc. could permanently damage the processor.

Most electronic components are susceptible to damage caused by electrical static discharge (ESD). In certain cases, the human body can have enough static electricity to cause resultant damage to the components by touch. This is especially true of the integrated circuits found on the truck/trailer microprocessor.



### Environment :

Think about protection of environment during all the life of this refrigeration unit.

To prevent environmental damages NEVER release refrigerant in the atmosphere, NEVER throw coolant, oil, battery and chemicals in the nature. It must be recuperate and recycle according to current regulations.

When disposing this refrigerant unit do it in an environmentally sound way and in accordance with current regulations.

### 3.1. Warning stickers maintenance

- Keep the warning pictograms clean and without any obstruction material.
- Clean the pictograms with water and soap and wipe them with soft fabric.
- Replace damaged or missing pictograms with new pictograms available in Carrier network.
- If a component having a pictogram is replaced by a new one, be sure that the new component has the right pictogram.
- Place a warning pictogram by applying it on a dry surface. Press to external sides to eliminate air bubbles.

### 4. PRODUCT LOADING

#### Important



**This unit is not designed to carry special loads which emit corrosive gas. These kind of products can impact unit performance, and seriously reduce component life time. Please contact us if such products need to be carried.**

Proper air circulation in the insulated box, air that can move around and through the load, is a critical element in maintaining product quality during transport. If air cannot circulate completely around the load: hot spots or top-freeze can occur.

The use of pallets is highly recommended. Pallets, when loaded so air can flow freely through the pallets to return to the evaporator, help protect the product from heat passing through the floor of the truck. When using pallets, it is important to refrain from stacking extra boxes on the floor at the rear of the truck, because this will cut off the airflow.

Product stacking is another important factor in protecting the product. Products that generate heat, fruits and vegetables for example, should be stacked so the air can flow through the product to remove the heat; this is called "air stacking" the product. Products that do not create heat, meats and frozen products, should be stacked tightly in the centre of the box.

All products should be kept away from the sidewalls of the body, allowing air to flow between the body and the load; this prevents heat filtering through the walls from affecting the product.

It is important to check the temperature of the product being loaded to ensure that it is at the correct temperature for transport. The refrigeration unit is designed to maintain the temperature of the product at the temperature at which it was loaded; it was not designed to cool a warm product.

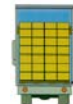
### SOME ADVICE

#### 4.1. Before loading

- Pre-cool the inside of the insulated body by lowering the temperature for about 15 minutes.
- Evacuate the humidity existing inside the box by carrying out a manual defrost. This can only take place if the box temperature is below 9°C.
- Evaporator fans are protected by safety grills. In the event of heavy duty use of the unit, ice can accumulate on the grills. It is therefore recommended to clean them regularly by means of a small brush. The operation MUST be done when the unit has been SHUT DOWN.

#### 4.2. When loading

- To be carried out with the unit stopped.
- It is recommended to open doors as little as possible to avoid the intake of hot air and humidity.
- Select the temperature by means of the thermostat, according to the transported goods.
- Check the internal temperature of the goods being loaded (using a probe thermometer).
- Take care not to obstruct the air intakes on the evaporator section and the ventilation ducts.
- Leave a free space of about:
  - 6 to 8 cm between load and front wall,
  - 20 cm between the top of the load and the roof,
  - between the floor and the load (gratings, pallets).
- Do not forget to close the doors.
- Before closing the doors, check your load once more and see that nobody is shut inside the box.



Load spacers

Load on pallets



**NOTE :**

For stationary utilization, we recommend to place the body in the shade.

## 5. RECOMMENDED TRANSPORT TEMPERATURES

Below are some general recommendations on product transport temperatures and operating modes for the unit. These are included for reference only and should not be considered pre-emptive of the set-point required by the shipper or receiver.

More detailed information can be obtained from your Carrier Transicold dealer.

Product	Set point range
Bananas	15°C (60°F)
Fresh fruits and vegetables	+4°C to +6°C (+39°F to +43°F)
Fresh meats and seafood	+2°C (+36°F)
Dairy products	+2°C to +6°C (+36°F to +43°F)
Ice	-20°C (-4°F)
Frozen fruits and vegetables	-18°C (0°F)
Frozen meats and seafood	-20°C (-4°F)
Ice cream	-25°C (-13°F)

It is essential to shut down the compartment during the periods when the doors are open, in order to maintain the temperature of the cargo in the other compartments and keep the unit operating correctly.

## 6. CAB COMMAND DESCRIPTION

**Keep the fold out sheet while reading the instructions.**

This functional accessory simplifies all control operations. From your seat, you can carry out all the control operations : shut-down, automatic start-up, adjusting the set point, defrost, program to customize unit operation to your own requirements, manage error messages in event of malfunction.

You can display the box temperature and see whether the set point is being maintained by checking the green indicator. The indicator lights up red in the event of malfunction. When the battery voltage is too low, a fail-save safety system shuts down the unit. Unit restart is automatic and time-delayed if the voltage rises to the normal level.

### 1. Display – 4 digits Box temperature

- Box temperature
- 'dFSt' message in defrost mode
- Malfunction messages
- Software version
- Hourmeter value
- User Datas
- User functions
- Unit configurations parameters

**2. Standby operation LED** indicates that unit is running on Standby mode



**3. Road operation LED** indicates that unit is running on Road mode



**4. Manual defrost key** enables manual defrost control.



**5. — key** is used to select the requested settings in different menus



**6. Set key** is used to access the set point and unit data.

• combined with other keys, it also enables selection menu of functional, and defrost parameters.



**7. + key** is used to select the requested settings in different menus.



**8. OFF key** enables to stop the unit or compartments.

• In the event of a power cut, the operating mode and pre-selected parameters are stored so that the same configuration is retrieved when power is restored.



**9. ON key** enables to start the unit (both compartments for Mt<sup>e</sup> unit).



### 10. Unit operation display

#### Green light (left half)

- Fast flashing : out of regulation range
- Slow flashing : in the regulation range
- ON : Null mode (regulation)



#### Red (right half): malfunction



## 7. OPERATION

### 7.1. Operation principle

#### In ROAD mode

- PULSOR units are an all electrical units powered by a generator.
- The generator is driven by the engine of the vehicle and supplies voltage to an inverter which distributes it to the different components
- The unit automatically shuts down when the engine is switched off with the ignition key.

#### In STANDBY mode

- The power network connection is detected by the unit which starts in standby mode after pressing the  key.
- If the ignition key is switched ON while the unit is connected to the power network or if the standby plug is connected while unit is running, the cab command triggers a visual alarm, in the form of a flashing red malfunction light and readout
- As soon as one operating mode is inhibited; the unit automatically starts up in the other mode.
- In all cases, the unit can be completely shut down manually by pressing the  key on the cab command.



### Temperature control

As soon as the set-point temperature has been reached, temperature control is obtained by shut-down and start-up the electrical power.

Condenser fan is controlled by the microprocessor and evaporator fan(s) cuts out during regulation. When transporting fragile loads such as fresh meat, vegetables and cheese, it is possible to program the microprocessor to obtain continuous ventilation by the evaporator during regulation.

### Defrost

Defrost operation is fully automatic but can be manually controlled.

- Defrost cycles are fully controlled by the integrated microprocessor.

- During the defrost cycle, the evaporator fan shuts down. The condenser fan is controlled by the microprocessor.

- Defrost cycle termination is controlled by a sensor.





- During the defrost cycle, the cab command display indicates "dFSt".

### Heating

Heating is provided by electrical heater(s).

The evaporator fan operates, the condenser fan is controlled by the microprocessor.


### 7.2. To start the unit

1. Start the vehicle engine.
2. Start the unit by pressing the  key. The digital display (1) of the cab control displays the box temperature.
3. Check if the temperature set point is correct by pressing the  key (  for Mt° unit).

The set point temperature is highlighted on the digital display.



4. Enter a new set point if necessary (See "To change set point temperature" – paragraph 7.5 p.9)

### 7.3. To stop the unit

- For a short stop (ex. delivery): switch off by the vehicle ignition key.
- For a long stop (more than 2 hours): press the  key.

### 7.4. To change display brightness

The luminosity of the display is adjustable on two levels while the box temperature is displayed:






- Press 2 seconds on  key to increase the display brightness.
- Press 2 seconds on  key to decrease the display brightness.

### 7.5. To change set point temperature

#### Important



If, when settings are adjusted, no key is activated within 10 sec. the system reverts to displaying the box temperature. All changes made are not recorded.

1. Press once the  key to display set point temperature.
2. Press again the  key for **5 seconds** to modify the set point, the set point will be flashing.
3. Press the  or  key to change the set point.
4. Press the  key to validate and return to box temperature display.






**NOTE:** For multi-temperature unit, repeat all steps for each compartment.

### 7.6. To change defrost parameters



#### IMPORTANT

If, when settings are adjusted, no key is activated within 10 sec. the system reverts to displaying the box temperature. All changes made are not recorded.







1. Press **simultaneously** the  AND  keys.
2. Press the  or  key to change the defrost interval. The new selected value is flashing until it has been validated.
  - OFF: inhibit defrost function
  - AUT: automatic defrost time optimized by the microprocessor (variable intervals)
  - 1h, 1.5h, 2h, 2.5h, 3h, 4h, 5h and 6h: fixed defrost interval
3. Press the  key to validate the change and return to box temperature display.

### 7.7. To display unit data (alarms, software version...)







#### IMPORTANT

If no key is pressed for 10 seconds, the display comes back to the box temperature

1. Press the  key for **5 seconds** to enter the Unit data menu. First data displayed is "Active Alarms".
2. Press  or  key to scroll through Active Alarms list.
3. Press the  key to enter the Passive Alarms list.
4. Press  or  key to scroll through Passive Alarms list.



5. Press the  and  keys **simultaneously** to access the next data. "Rd H" will be displayed for 3 seconds.











- Press the  and  keys simultaneously to access the previous data.

Unit data			
	Display for 3 seconds	Description	Values for 10 seconds
1	Axxx	Active alarms	up to 5 active alarms can be showed
2	Pxxx	Passive alarms	up to 20 passive alarms can be showed
If an alarm occurs, contact your service centre.			
3	Rd H	Road running hours	XXXX : tens of hours : 10 displayed = 100 hours
4	sbyH	Standby running hours	XXXX : tens of hours : 5 displayed = 50 hours
5	DF C	Calculated time between two defrost	XXXX : time is in minutes
6	DF N	Remaining time to go to the next defrost	XXXX : time is in minutes
7	MicS	Microprocessor Software version	XXXX : Software version
8	CabS	Cab command Software version	XXXX : Software number
9	InvS	Inverter Software version	XXXX : Software number

#### 7.8. To set user functions



**IMPORTANT**  
If, when settings are adjusted, no key is activated within 10 seconds, the system reverts to displaying the box temperature.  
All changes made are not recorded.

- Press **consecutively** the ,  &  keys to access to the functional parameters.
  - The first configuration "LOSP" is displayed for 3 seconds.
  - then actual Minimum set point is displayed.
- Press  or  key to select another value. The new value is flashing for 10 seconds.
- Press the  key to validate the new selected value.
  - By pressing the  and  keys simultaneously, you will go to the next function.
  - By pressing the  and  keys simultaneously, you will go to the previous function.

User functions			
	Display for 3 seconds	Description	Values for 10 seconds
1	LOSP	Minimum set point	0°C/-20°C/-25°C/-30°C (32°F/-4°F/-13°F/-22°F) Factory setting by default : -20°C (-4°F)
2	HISP	Maximum set point	+20°C/+30°C (68°F/86°F) Factory setting by default : +20°C (68°F)
3	SPL	Set Point Lock	SPON = Allow set point modification SPOF = Do not allow set point modification Factory setting by default : SPON
4	EFor	Evaporator Fan Operating mode during regulation	On : Fan motor enable during regulation OFF : Fan motor disable during regulation Factory setting by default : OFF
5	PriO	Only for Mt* Compartment operating mode	AUTO: The microprocessor select the priority on the compartment having the lowest set point CPT1 : priority to the selected compartment CPT2 : priority to the selected compartment Factory setting by default : AUTO

#### 8. MAINTENANCE

A comprehensive maintenance program will help to insure that the unit continues to operate reliably. Such a maintenance program will also help to control operating costs, increase the unit's working life, and improve performance.

##### NOTE

All maintenance services must be done by a technician trained on Carrier products respecting all safety and quality standards of Carrier.

Before any operation requiring an intervention on the unit, check that:

- the unit (cab command) is OFF
- It is impossible for the unit to automatically start-up during maintenance.

#### 8.1. Maintenance schedule

Kms	Miles	Hours	Initial service 100 hrs or 5000 kms first achieved	Service A	Service B
5000	3000	100	■		
30 000	18 000	1000		■	
60 000	36 000	2000		■	
90 000	54 000	3000		■	■
120 000	72 000	4000		■	
150 000	90 000	5000		■	
180 000	108 000	6000		■	■





**8.2. Service description**

Initial service 100 hrs or 5000 kms first achieved	<ul style="list-style-type: none"> <li>•Skin aspect checking</li> <li>•Refrigerant leak checking</li> <li>•Condenser coil cleaning</li> <li>•Generator mounting kit fastened on the engine checking</li> <li>•Generator fastened on the mounting kit checking</li> <li>•Generator belt tension checking and adjustment.</li> </ul>
Service A	<ul style="list-style-type: none"> <li>•All the belts checking and adjustment. Replacement if needed.</li> <li>•Condenser and evaporator coils cleaning</li> <li>•Battery connexions and clamps cleaning</li> <li>•Refrigerant leaks checking</li> <li>•Harness checking</li> <li>•Defrost: settings checking (according customer application), refrigerant control valves, fans stop, defrost end automatically</li> <li>•Cooling operation in road and standby modes checking</li> <li>•Heating operation in road and standby modes checking</li> <li>•All electrical connections for no damage checking</li> <li>•Generator belt tension checking and adjustment</li> <li>•Sight glass status checking: if yellow, filter drier replacement.</li> <li>•Inverter heat shrink cleaning</li> </ul>
Service B	<ul style="list-style-type: none"> <li>•<b>Operation from Service A +</b></li> <li>•Generator belt replacement</li> <li>•Idler pulley bearings replacement if any</li> </ul>

**Refrigerant:** type R404A

**Oil : POE 74**

Oils of PAG type are strictly incompatible with the operation of our unit: never use an oil other than that approved by Carrier.

Oil analysis: on request, we can analyze your compressor oil. To do this, we send a small drum with a label on which you should indicate: the type of compressor, the lapse time or mileage since the last oil change, the type of Carrier equipment, the date of initial operation.

**9. A.T.P. EUROPE REGULATION EXTRACT**

(Date : March 1974)

Approval of vehicles intended for the carriage of perishable goods.

Before putting a refrigerated vehicle into service, it is necessary to have it approved by the Regional Health Department.

Characteristics of vehicles used for carrying perishable goods; refrigeration unit.

The refrigeration unit is an insulated unit with a cooling system which makes it possible, with a mean outside temperature of +30°C, to lower the temperature inside the empty body and to maintain this low temperature in the following way:

**Class A:** Refrigeration unit furnished with a cooling system whereby a temperature between +12°C and 0°C inclusive can be chosen.

**Class B:** Refrigeration unit furnished with a cooling system whereby a temperature between +12°C and -10°C inclusive can be chosen.

**Class C:** Refrigeration unit furnished with a cooling system whereby a temperature between +12°C and -20°C inclusive can be chosen.

The cooling capacity of a unit is determined by a test carried out in one of the approved testing stations and ratified by an official report.

Note: The "K" factor of bodies intended to be classified as C must be equal to or lower than 0.4 W/m<sup>2</sup> °C.

Signs, identification marks and plates to be attached to refrigeration units

Refrigeration Plate

This reference must be followed by identification marks according to the following list:

Standard refrigeration unit Class A	FNA
Reinforced refrigeration unit Class A	FRA
Reinforced refrigeration unit Class B	FRB
Reinforced refrigeration unit Class C	FRC

In addition to the above identification marks, the date (month and year) of expiry of the approval certificate must be indicated.

Example:  
FRC 6-2011  
(6 = month (June) 2011 = year)

Very important

Regularly check the expiry date of the approval certificate. During transport, the approval certificate or provisional certificate should be shown on request of qualified agents. To have an insulated unit approved as a refrigeration unit, an application to modify the approval certificate should be sent to the regional health office.



**10. 24H ASSISTANCE**

At Carrier Transicold we're working hard to give you complete service when and where you need it. That implies a worldwide network of dealers and available an emergency service. These service centres are manned by factory-trained service personnel and backed by extensive parts inventories that will assure you of prompt repair.

Should you encounter a unit problem with your refrigeration unit during transit, follow your company's emergency procedure or contact the nearest Carrier Transicold service centre. Consult the directory to locate the service centre nearest you. This directory may be obtained from your Carrier Transicold dealer.

If you are unable to reach a service center, call Carrier Transicold's 24Hour Assistance:

In Europe, please use the following free phone numbers from:

A	AUSTRIA	0800 291039
B	BELGIUM	0800 99310
CH	SWITZERLAND	0800 838839
D	GERMANY	0800 1808180
DK	DENMARK	808 81832
E	SPAIN	900 993213
F	FRANCE	0800 913148
FIN	FINLAND	0800 113221
GB	GREAT BRITAIN	0800 9179067
GR	GREECE	00800 3222523
H	HUNGARY	06800 13526
I	ITALY	800 791033
IRL	IRELAND	1800 553286
L	LUXEMBURG	800 3581
RUS	RUSSIA	810 800 200 31032
N	NORWAY	800 11435
NL	THE NETHERLANDS	0800 0224894
P	PORTUGAL	8008 32283
PL	POLAND	00800 3211238
S	SWEDEN	020 790470

From other countries / Direct : +32 9 255 67 89  
In Canada or United States, call 1 – 800 – 448 1661

When calling, please have the following information ready for fastest service:

- Your name, the name of your company, and your location
- A telephone number where you can be called back
- Refrigeration unit model and serial number
- Box temperature, set point and product
- Brief description for the problem you are having and what you have already done to correct the problem.

We will do everything we can to get your problem taken care of and get you back on the road.

